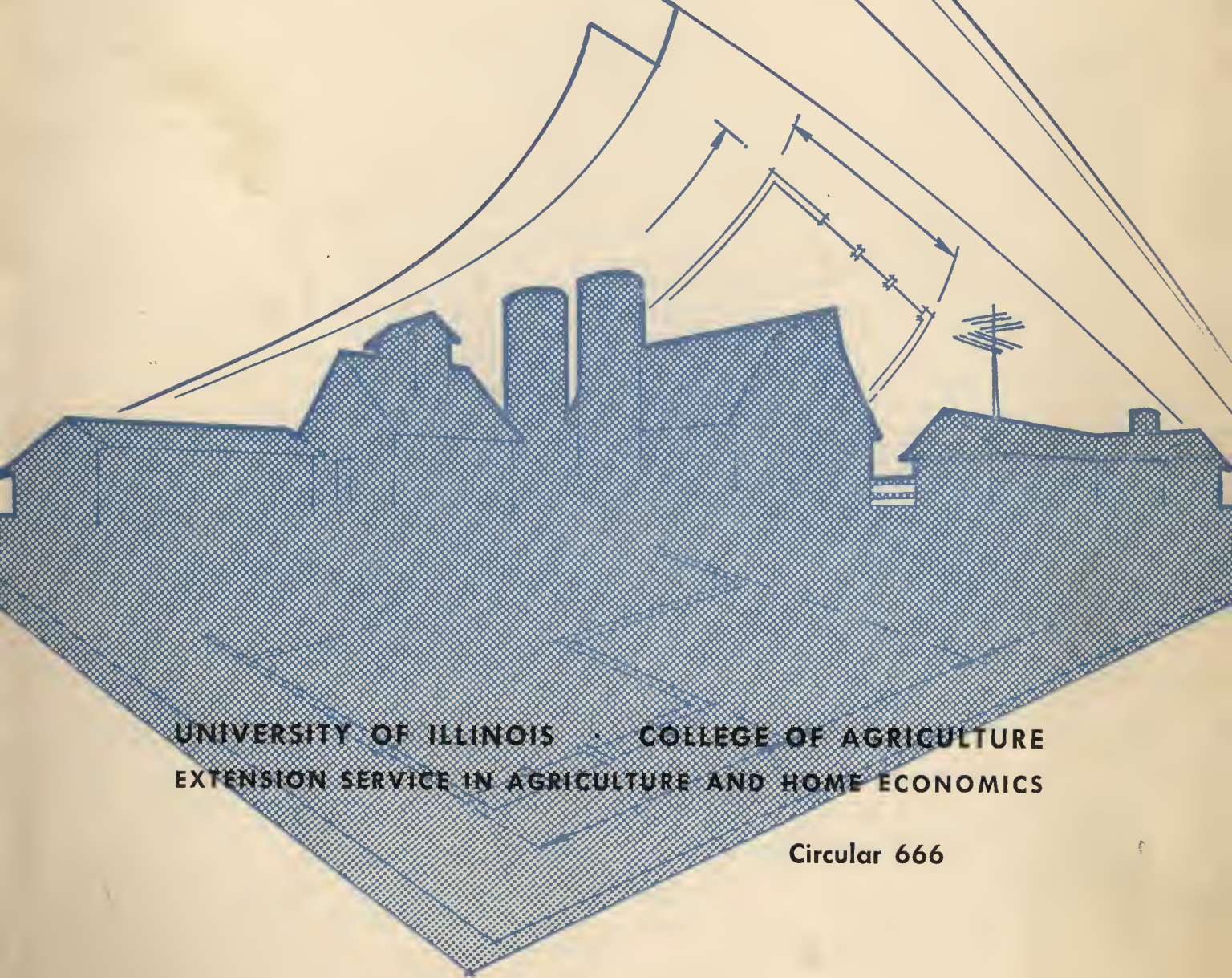


# PLANS for Farm Buildings and Livestock Equipment



UNIVERSITY OF ILLINOIS • COLLEGE OF AGRICULTURE  
EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

Circular 666

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of Agricultural Engineering)

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Urbana, Illinois

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## The Plans in This Book . . .

The plans that you will find listed on the following pages are generally recommended for Illinois. They have been tested by wide use. The small charge made for each plan is only enough to cover the cost of printing and handling.

The plans in this book were selected from a large number prepared by the University of Illinois, the U. S. Department of Agriculture, and the Midwest Plan Service. The Midwest Plan Service is a cooperative program of the states in the North-Central region, of which Illinois is a part. Plans are developed cooperatively, are published as Midwest plans, and are then distributed by the individual states. In the future an increasing number of the plans distributed by the University of Illinois College of Agriculture will be Midwest plans. Illinois will continue, however, to develop new designs and to prepare plans to meet needs not otherwise satisfied.

These plans and planning aids are one result of the research work carried on by the Department of Agricultural Engineering in a wide variety of subjects connected with farm buildings and rural housing. Much of this research is conducted through cooperative projects with other departments, other state experiment stations, and the U. S. Department of Agriculture.

Farm and home advisers are ready to help in selecting plans, placing orders, or obtaining information. Many materials dealers, contractors, and vocational-agriculture teachers are also familiar with these plans and can give advice about them.

Farm-building planning at the University of Illinois College of Agriculture is concerned with more than just the preparation and distribution of plans. Some of the other activities include county or community meetings at which extension specialists discuss farm-building problems, short courses and conferences, and the distribution of publications on a variety of subjects relating to building. Personal planning is not a part of the service but questions are answered by correspondence, visitors talk over problems with staff members, and some demonstration planning is carried on.

## How to Order . . .

**Plans.** Send orders and payment to the Department of Agricultural Engineering, University of Illinois, College of Agriculture, Urbana, Illinois. List plans by name and number.

**Illinois and regional publications** (*page 19*). Write to Department of Agricultural Engineering, University of Illinois, College of Agriculture, Urbana, Illinois.

**Free publications of U. S. Department of Agriculture** (*page 18*). Write to Division of Publications, Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

**Small Homes Council publications** (*page 18*). Send orders with payment to the Small Homes Council, Mumford House, University of Illinois, Urbana, Illinois.



## PLANNING FARM BUILDING IMPROVEMENTS

A long-time program for building construction, maintenance, and remodeling, projected the same way that a crop or livestock program is projected, will keep you from making expensive mistakes in your building improvements. Such a program is the only sound basis for such decisions as whether to make minor repairs on an old building so that it can be used a few more years, make major repairs and alterations on an existing building so that it will serve many more years, or build a new building.

If you decide on a new building, you need to give careful consideration to several questions before you are ready to build. What is the best way to arrange the space in the building? How large should it be? What building materials ought to be used? How much ought you to spend? Where should you locate it?

**Start with a good plan.** Those that you find in this book will help you make a good choice, whatever building you have in mind. They have been planned and designed in line with the recommendations of the College of Agriculture. The building types, measurements, arrangements, and constructions they show have been proved by research and experience. Even though no one of the plans satisfies your building needs in every detail, the plans can be used as a guide to good construction and effective arrangement.

The special requirements and problems of different farm enterprises have been considered in developing these plans. For example, sanitation has been emphasized in designing structures for use in hog production. Shelters and equipment for beef cattle aim for efficient handling of the animals. Dairy barns and milkhouses meet the requirements for the production of grade A milk. Cribs and bins have been designed for safe storage and conditioning.

In deciding on a plan, you will normally have to choose between two or more systems of housing. For example, you will need to decide whether you prefer the loose housing barn for your dairy cattle or the stanchion barn, whether you will use individual houses or a central house for swine farrowing, whether you want ground level or loft storage for hay, and whether you will have ear-corn cribs or shelled-corn bins.

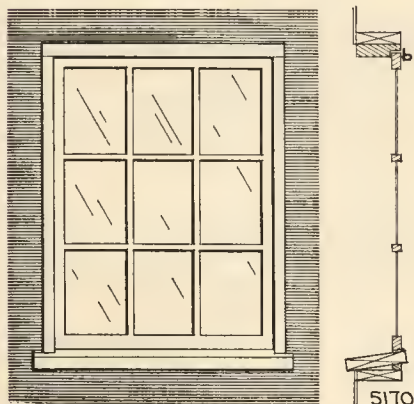
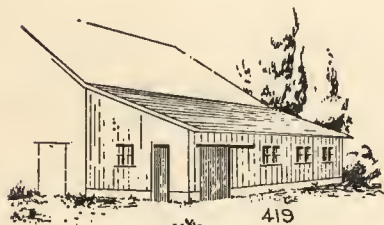
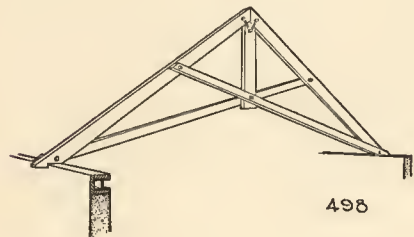
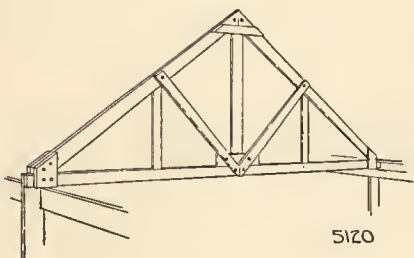
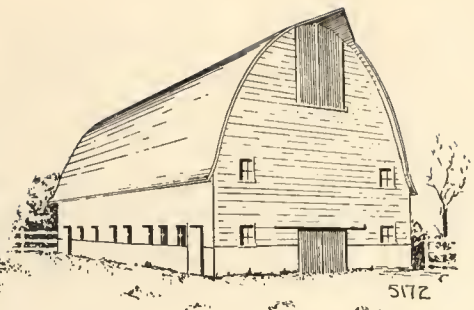
**Figure building size and capacity carefully.** Adjust to the amount of crops, livestock, and equipment you will store or house. Most of the plans in this book are for buildings of a definite size, but in the exact size shown they would meet the needs of only a few farms. The size can be varied to meet the needs of the individual farm; the plans will show good arrangements and standard methods of construction. Ordinarily farm buildings can best be varied in size by changing the length without affecting width, height, or type of construction.

**Choose a suitable building material.** Most of the plans are adaptable enough that materials other than those shown on the plans can be used. Roofing materials are usually not indicated, so their choice is left entirely up to the builder. Prefabricated parts or fully prefabricated buildings can be used in place of ordinary construction; the plans can then be used merely as a guide to effective space arrangement.

**Balance amount spent against expected return.** Buildings must pay out in terms of their value for shelter, storage, labor saved, and improved quality of products. You normally cannot justify elaborate buildings where low-cost buildings — pole frames, open sheds, or straw shelters — will serve the purpose. You may justify a higher investment, however, where increased returns can be expected from better-quality buildings.

High costs of construction can best be offset by carefully planning each step of the job to insure that you get the maximum improvement for each dollar spent. There is no magic way to cut down building costs. You can, however, make a sizable reduction in the cash outlay by using as much of your own labor as possible. Using materials already on the farm or available locally will also help.

**Locate the building wisely.** A good location may mean the difference between convenience and efficiency on one hand and dissatisfaction on the other. Give careful consideration to such things as sheltered yards, windbreaks, drainage, access from driveways, and distances between buildings.



## FRAMING PLANS AND CONSTRUCTION DETAILS

Most of the complete plans listed on the following pages include a floor plan, construction views, exteriors, and details for that particular building. But often a typical standard design is wanted that can be adapted in its floor-plan arrangement according to individual needs. Several such designs are given below.

### GABLE-ROOF FRAMES

**Post supported, 1 story. Plan 497 (15¢).** 34 or 36 feet wide. (*Top left*)

**Post supported, 1½ story. Plan 5119 (15¢).** 32, 34, or 36 feet wide. Has limited overhead storage.

**Clear span truss, 1 story. Plan 72005 (30¢).** 24- and 30-foot spans; glue or timber connectors. **Plan 506 (15¢).** 36-foot span; timber connectors.

**Scissors truss, 1 story. Plan 498 (15¢).** 24-, 28-, and 32-foot spans. (*Left*)

**Trussed rafters, 1 story. Plan 5120 (15¢).** 34- or 36-foot spans. Relatively light trusses spaced 2 feet apart. (*Left*)

### GAMBREL-ROOF FRAMES (*top center*)

**Braced rafters, 2 stories. Plan 5174 (15¢).** Self-supporting roof, for barns 32, 34, or 36 feet wide. Essential details on one sheet. For separate plan of each, order **Plan 72008-A (15¢)** for 32-foot width; **Plan 72008-B (15¢)** for 34-foot width; and **Plan 72008-C (15¢)** for 36-foot width.

**Gambrel truss, 2 stories. Plan 72009 (15¢).** Shawver trusses of heavy construction at 12-foot spacing, with intermediate purlins and plain rafters.

### GOTHIC-ROOF FRAMES (*upper right*)

**Bent to shape, 2 stories. Plan 72006 (30¢).** 34 or 36 feet wide. On-site construction as an alternate to commercial laminated rafters.

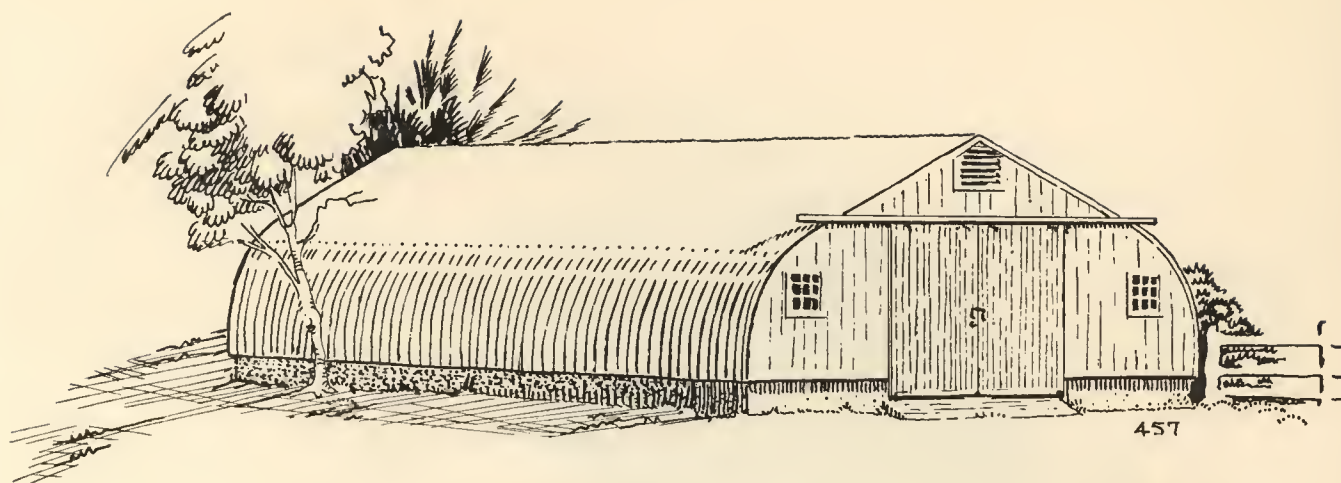
**Sawed to shape, 2 stories. Plan 72007 (15¢).** 34 or 36 feet wide. Uses wide thin boards placed side by side. Especially useful with native rough lumber.

**FRAMING FOR SMALL BUILDINGS. Plan 5573, sheet 2 (15¢).** Trussed frame, 1 story, 24 feet wide; also 2 stories, 20 feet wide.

**SHED FRAMING. Plan 419 (15¢).** Details for adding shed to existing buildings. For widths of 14, 16, 18, or 20 feet. (*Left*)

**WINDOW FRAMING. Plan 5170 (15¢).** Five common types. (*Lower left*)





## MACHINERY AND EQUIPMENT STORAGES

With more and larger machines on farms, there is perhaps greater need for new machinery storages than for any other farm building. On most farms the amount of machinery has simply outgrown the storage space. Expensive machinery either sits out in the weather or is inadequately stored.

Utility storages such as all-steel buildings, arched-roof structures, and pole frames with wood, steel, or aluminum covering are being used more and more to provide the larger shelters needed. It is generally advisable to include a farm shop when planning a new machinery storage.

**MACHINE SHED, arched roof. Plan 457 (15¢).** 36 feet wide. Can use either home-built or commercial rafters. (Top)

**MACHINE SHED, trussed gable roof. Plan 275 (15¢).** 26 feet wide. (Right)

**MACHINE SHED, trussed gable roof. Plan 247 (15¢).** 28 feet wide. Shop and garage attached.

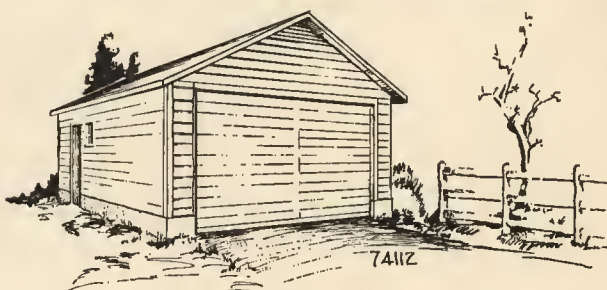
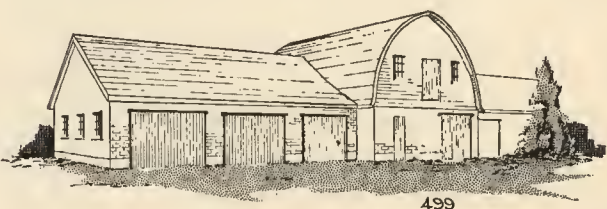
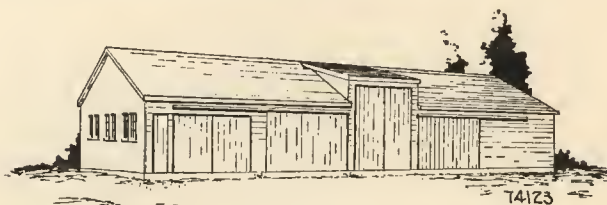
**MACHINE SHED, raised center section. Plan 74123 (45¢).** 26 feet wide. Center section will accommodate high machinery. (Right)

**FARM MACHINERY HEADQUARTERS. Plan 499 (60¢).** 32-x-40 foot arch-roof center section with two 32-x-48 foot gable-roof wings. Center section is for a shop and repair space and the wings for storage. (Right)

**POLE-FRAME UTILITY BUILDING (also called "aluminum machine shed"). Plan 502 (45¢).** 32 feet wide. Full details for framing and clear span truss. Shown with aluminum roofing and siding.

**FARM WORKSHOPS. Plan 463 (15¢).** Three floor plans for a shop. Can be built as a separate building or as part of another building.

**SHOP AND GARAGE. Plan 74112 (30¢).** Built 20 x 24 feet, provides space for small shop and storage space for two vehicles. (Lower right)

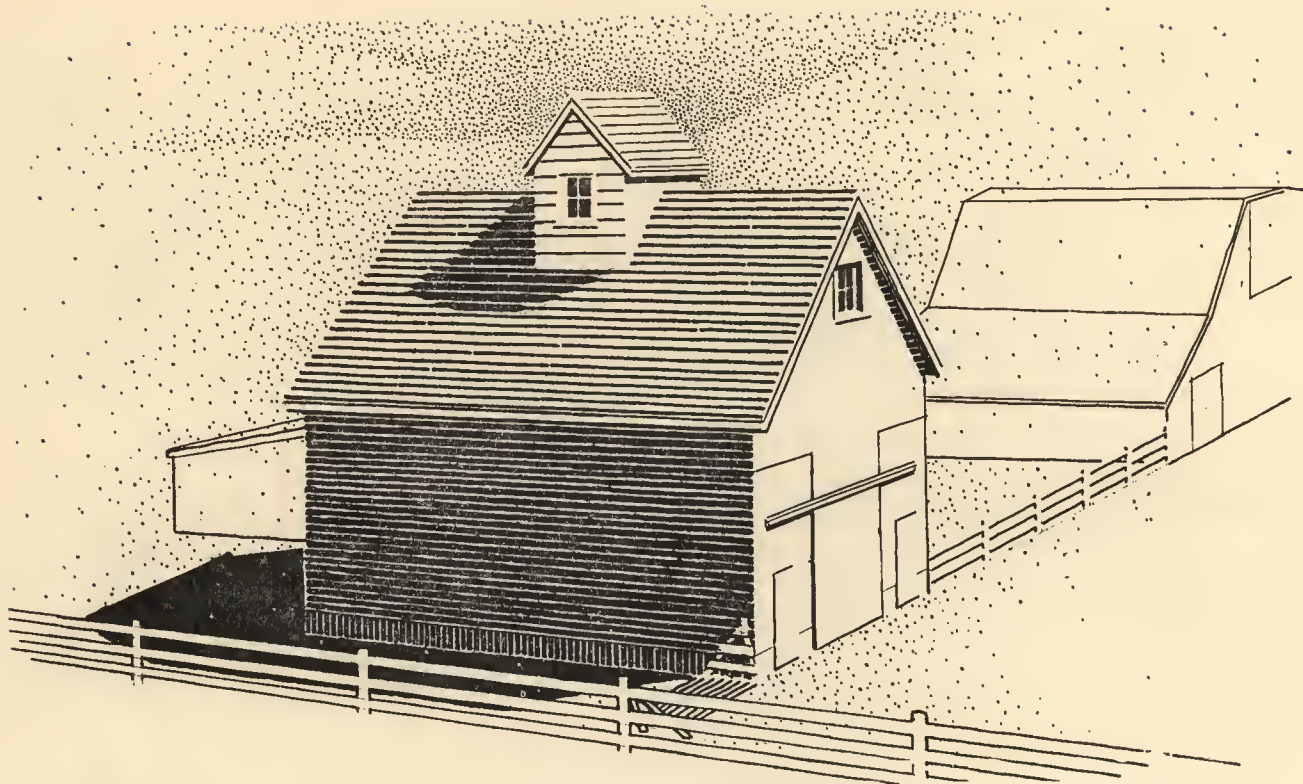


**ROUND-ROOF MACHINE SHED convertible to 4,000-bushel ear-corn drier. Plan 74133 (60¢).**

**GABLE-ROOF MACHINE SHED convertible to a 4,000-bushel ear-corn drier. Plan 75513 (45¢).**

**TWO-CAR GARAGE convertible to 2,500-bushel grain bin. Plan 73263 (30¢).**

**TWO-TRUCK GARAGE convertible to 4,500-bushel grain bin. Plan 74132 (30¢).**



## CROP STORAGE BUILDINGS

Buildings for crop storage must protect the crops from moisture, rodents, and insects and be strong enough to resist heavy loads. Because they are loaded so heavily, no attempt should be made to build one without carefully prepared plans.

A wide variety of designs is available for crop storage. These range from temporary silos and cribs and pole-frame sheds for hay and bedding to permanent farm-built or manufactured silos, cribs, and grain storages.

Corn cribs are limited to about 8 feet in width for natural drying over most of Illinois; 7 feet is better in the two northern tiers of counties. Height to the plate is limited to 16 or 18 feet; otherwise too much corn will be damaged by dropping. The height should not be more than 14 feet in cribs designed without cross-bracing.

Most cribs can be adapted readily for drying ear corn. Some new cribs are planned especially to permit effective drying by forced-air ventilation either with or without heat. It is expected that arti-

ficial conditioning will be more common in the future and that more and more farmers will shell their corn direct from the field and dry it immediately. Tight bins of wood, steel, or masonry can then be used for the storage of dried shelled corn. The following references, available from the Department of Agricultural Engineering at Urbana, will be found useful in this connection.

Drying Corn in Cribs. AEng. 545.

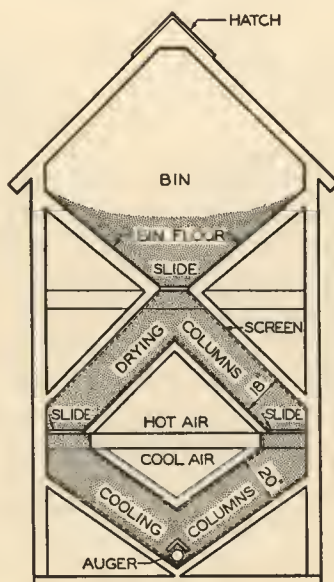
Storing Soybeans on the Farm. C-692.

Storage of Small Grains and Shelled Corn. Farmers' Bulletin 2009.

Storage of Ear Corn on the Farm. Farmers' Bulletin 2010.

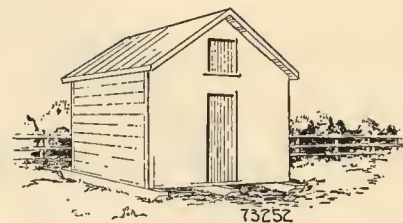
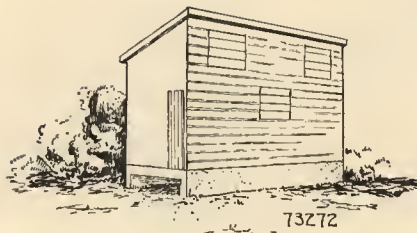
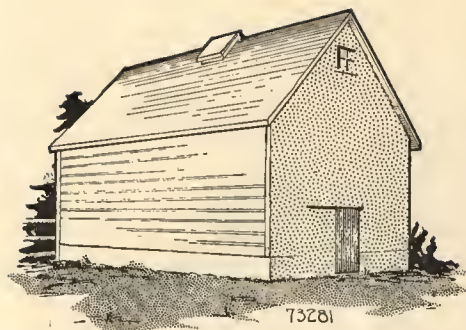
Inclined-Column Grain Drier. Leaflet 314.

Plan 503 (45¢). Construction plans for inclined-column grain drier. (Left)



The plans on page 7 that are marked with a star (\*) and those for convertible buildings on page 5 are illustrated and described in more detail in a plan book, "Grain Storage Building Plans," available from the Department of Agricultural Engineering for 25¢.





## PLANS FOR CROP STORAGE BUILDINGS

**CRIB AND GRANARY. Plan 73283 (30¢).** Gable roof. Two 8-foot cribs, 11-foot driveway, overhead bins. When built 32 feet long, has a capacity of 3,200 bushels of ear corn and 2,000 bushels of small grain. (Page 6, top)

**CRIB ADAPTED FOR ARTIFICIAL DRYING. Plan 73281 (30¢).** Two 8-foot cribs with 4-foot alleyway between. Alleyway can serve as the main duct to dry the corn artificially. (Top left)

**SMALL CRIB AND GRANARY. Plan 413 (30¢).** Two 8-foot cribs, 9-foot driveway, limited bin space overhead. When built 28 feet long, has a capacity of 1,800 bushels of ear corn and 800 bushels of small grain.

**SINGLE CRIB. Plan 73272 (15¢).** Shed roof. Built 8 feet wide, 32 feet long, with 12-foot front height has a capacity of 1,000 bushels. (Top center)

**SEMI-PERMANENT CRIB. Plan 73271 (15¢).** Shed roof. 8 feet wide. Pole and snowfence construction. (Also described in sheet 447, "Pole and Snowfence Crib," sent free on request.)

**CIRCULAR CORN CRIB. Plan 495 (free).** Built of native lumber. 12 feet high. Holds 900 bushels of ear corn when built 16 feet across.

**PREFABRICATED GRAIN BIN. Plan 73294 (45¢).** Wood construction. Floor, wall, and roof panels are framed and covered with plywood. Panels are then bolted together to form the bin.

**MOVABLE GRAIN STORAGE. Plan 73252 (15¢).** Wood construction, mounted on skids. When built 12 x 14 feet, holds 1,000 bushels. (Top right)

**PERMANENT GRAIN STORAGE. Plan 73261 (15¢).** Wood construction, concrete floor and foundation. When built 12 x 20 feet, holds 1,500 bushels. Readily converted to one-car garage.

**LARGE GRAIN STORAGE. Plan 73264 (30¢).** Two rows of bins 10 feet wide with 11-foot driveway between. When built 40 feet long, holds 8,000 bushels of grain.

**HAY SHED. Plan 73101 (30¢).** Creosoted pole uprights and wood frame. When built 24 x 60 feet with 20-foot side walls, has a capacity of 60 tons of loose hay or 140 tons of baled or chopped hay.

**\*300-BUSHEL GRAIN BIN convertible to two-pen movable farrowing house. Plan 72626 (15¢).**

**\*3,400-BUSHEL GRAIN BIN convertible to six-pen farrowing house. Plan 72627 (30¢).**

**\*500-BUSHEL GRAIN BIN convertible to movable brooder house. Plan 72711 (15¢).**

**\*MOVABLE GRAIN BIN, 600-bushel capacity. Plan 73251 (15¢).**

**\*FOUR-BIN GRANARY, 1,700-bushel capacity. Plan 73262 (30¢).**

**\*GRAIN BIN, 2,500-bushel capacity, convertible to two-car garage. Plan 73263 (30¢).**

**\*FARM ELEVATOR, 10,000-bushel capacity, stud construction. Plan 73268 (90¢).**

**\*FARM ELEVATOR, 10,000-bushel capacity, crib construction. Plan 73269 (45¢).**

**\*DOUBLE CORN CRIB. Plan 73282 (30¢).**

**\*STEEL GRAIN BIN, 1,000-bushel capacity. Plan 73291 (30¢).**

**\*STEEL GRAIN BIN, 2,700-bushel capacity. Plan 73292 (30¢).**

**\*GRAIN BIN, WOOD FRAME, 1,200-bushel capacity. Plan 73293 (30¢).**

**Same, 2,700 bushels. Plan 73295 (30¢).**

**\*PLYWOOD GRAIN BIN, 1,100-bushel capacity. Plan 73296 (15¢).**

**\*4,500-BUSHEL GRAIN BIN, convertible to two-truck garage. Plan 74132 (30¢).**

**\*4,000-BUSHEL EAR-CORN DRYER, convertible to round-roof machine shed. Plan 74133 (60¢).**

**\*STEEL BIN with ventilated floor, 1,000-bushel capacity. Plan 75503 (45¢).**

**\*EAR-CORN DRIER, 4,000-bushel capacity, convertible to gable-roof machine shed. Plan 75513 (45¢).**

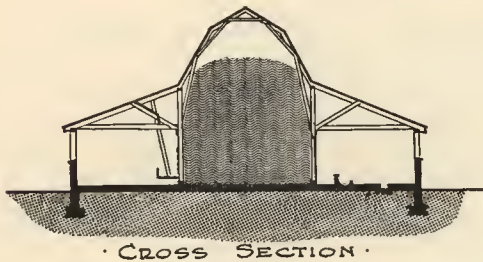
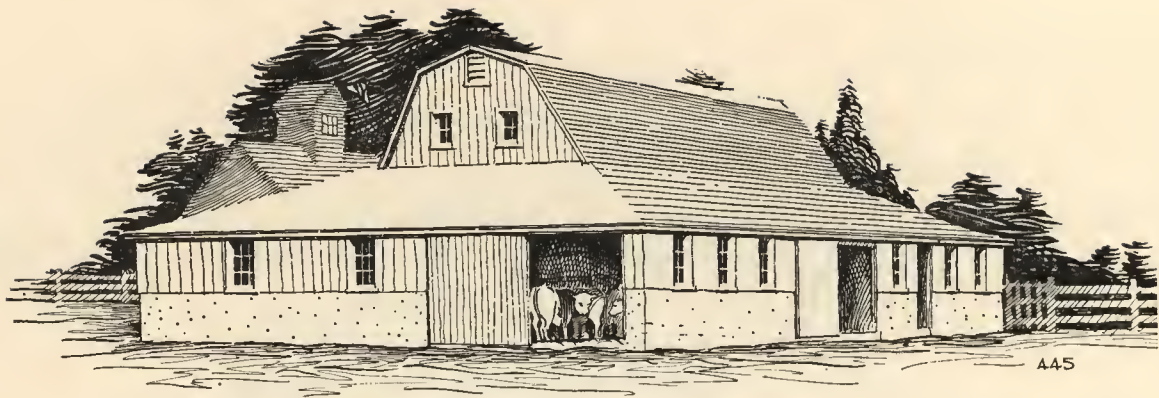
**\*MOVABLE HOG SELF-FEEDER, 300-bushel capacity. Suitable for short-time storage. Plan 77613 (15¢).**

**MOVABLE HOG SELF-FEEDER, 400-bushel capacity. Provides weathertight storage. Plan 77614 (15¢).**

**\*MOVABLE HOG SELF-FEEDER, drier, and storage unit. Holds 550 bushels of ear corn or 1,100 bushels of grain. Plan 77615 (30¢).**

**\*MOVABLE BEEF-CATTLE SELF-FEEDER, drier, and storage unit. Holds 750 bushels of ear corn or 1,500 bushels of grain. Plan 77416 (30¢).**

\* For a more complete description send for "Grain Storage Building Plans" (25¢).



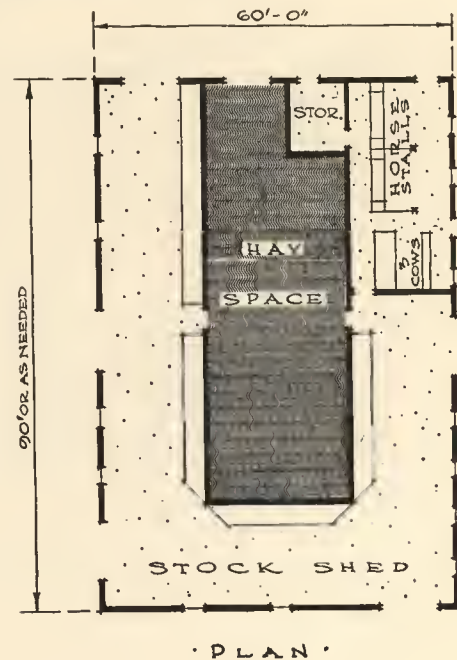
## BEEF CATTLE HOUSING AND EQUIPMENT

Beef cattle need a dry bed and protection during cold and stormy weather, but they do not require elaborate housing. A good arrangement of barns and lots, a design that will simplify feeding and management, storage space for feed and bedding, and easy removal of manure are often just as important as shelter.

Both open sheds and enclosed barns are used for housing beef cattle, but in Illinois and surrounding states sheds are more common than barns. In either one, however, some enclosed space is needed for young calves and for cows at calving time.

Open sheds usually have the front open to the south or east and are enclosed at the back and on both ends. Permanent sheds should normally be at least 20 feet from front to back, or deeper if racks or bunks are placed inside. At least 8 feet of headroom is needed; 9 feet is better to allow for accumulation of manure and to accommodate power-operated manure loaders. The roof should be self-supporting to give post-free space inside the building and make it easier to use power-operated manure loaders.

Enclosed barns protect the stock better and often have space to store bedding and hay and other feed. The most widely used type of enclosed barn, shown above, has a center section for hay



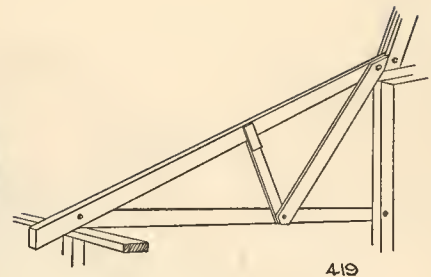
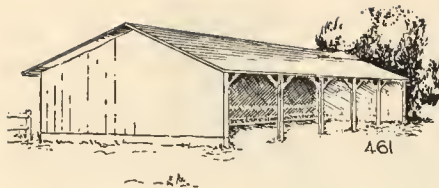
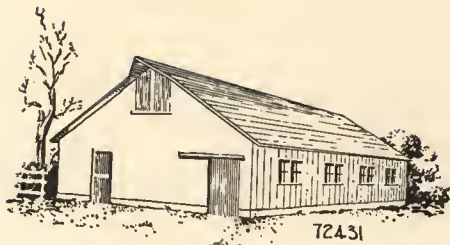
storage from the ground up and attached sheds for the livestock. The sheds for livestock in an enclosed barn should normally be at least 16 feet wide and 18 to 20 feet is better yet. When stock is kept in enclosed barns, it is well to leave some doors open to the south or east.

In most localities a concrete feedlot is recommended. Concrete floors are not necessary in the pen areas, although they are desirable because they are permanent and easier to clean.

On many farms housing for beef cattle can be readily provided by remodeling an old general-purpose barn, if it is in reasonably good condition. All that needs to be done is to remove old pens, stall partitions, and other interior construction not needed to support the loft and then add openings, feed racks, and other equipment.

For detailed planning information, send for North-Central Regional Publication No. 6, "Beef Cattle Housing" (free).





## PLANS FOR BEEF CATTLE HOUSING

**CATTLE FEEDING BARN. Plan 445 (30¢).** Gambrel roof, 24-foot center section for hay storage from ground up; 18-foot enclosed sheds on three sides for animal shelter (*opposite page*). **Plan 72433 (45¢).** Same except drawings are more detailed.

**CATTLE FEEDING BARN. Plan 72432 (45¢).** Pole frame; hay to ground in center, sheds on each side, 44 feet wide. **Plan 72431 (30¢).** Similar except 52 feet wide (*upper left*).

**CATTLE BARN, TIMBER FRAME. Plan 72431 (30¢).** Gable roof, 20-foot center section for hay storage from ground up; 16-foot cattle section on two sides. (*Upper left*)

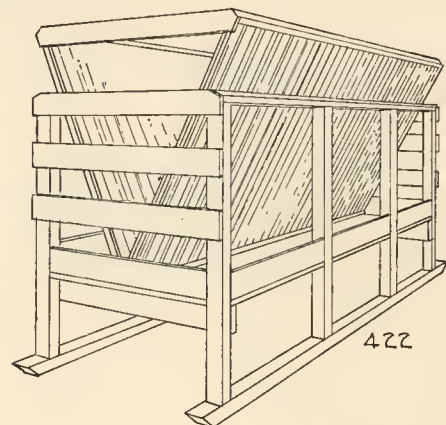
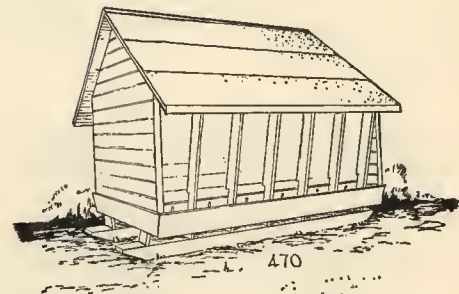
**CATTLE BARN, 2 STORIES. Plan 72421 (45¢).** Gambrel roof, 36 feet wide.

**CATTLE SHED, OPEN FRONT. Plan 461 (15¢).** Trussed gable roof, 24 feet wide. Pole or stud frame construction. (*Upper center*)

**CATTLE SHED, POLE CONSTRUCTION. Plan 72408 (30¢).** Open front, trussed gable roof, 24 feet wide.

**CATTLE SHEDS. Plan 72410 (60¢).** Pole frame, L-shaped. 24 feet wide, gable roof. **Plan 72411 (60¢).** Same except wood-frame walls. **Plan 72412 (60¢).** Same except concrete-block walls.

**SHED ATTACHMENTS. Plan 419 (15¢).** For additions to existing buildings; 14-, 16-, 18-, and 20-foot shed widths. (*Upper right*)



## PLANS FOR BEEF CATTLE EQUIPMENT

**SELF-FEEDER. Plan 470 (15¢).** For shelled corn, small grain, or ground feed. 12 feet long. For 30 to 35 head. Covered hopper. (*Right*)

**MOVABLE SELF-FEEDER. Plan 77416 (30¢).** Suitable also as a drier and storage unit. Capacity, 750 bushels of ear corn or 1,500 bushels of grain. Can be connected to mechanical blower for drying.

**FEED BUNK. Plan 77411 (15¢).** For grain and silage. 30 inches high, 3 feet wide, and 12 feet long. Accommodates 10 to 15 head.

**RACK AND BUNK COMBINATION. Plan 422 (15¢).** For grain, silage, and hay. 12 feet long. Accommodates 10 to 15 head. (*Right*)

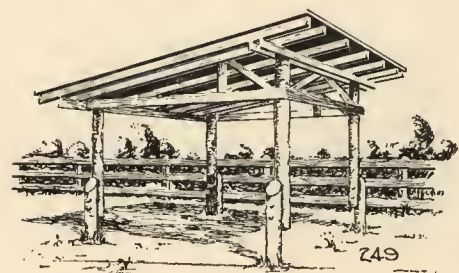
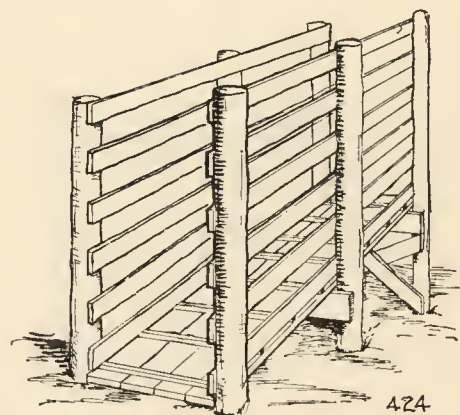
**LOADING CHUTE. Plan 424 (15¢).** Permanently installed. Heavy post and frame construction. (*Right*)

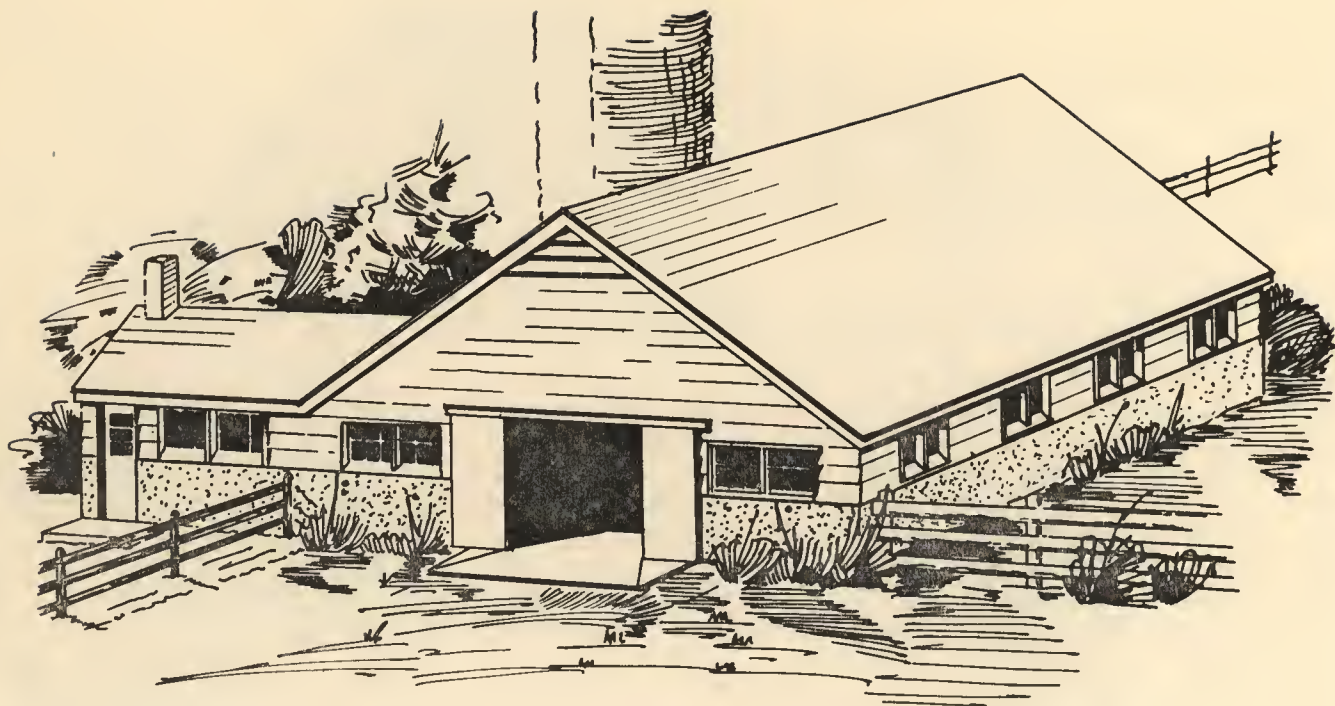
**STOCK AND STANCHION. Plan 425 (15¢).** Heavy post and frame construction.

**CATTLE GUARD. Plan 512 (15¢).** Plank construction.

**PASTURE SHADE. Plan 249 (15¢).** Post frame 12 feet square with overhanging roof 16 feet square. (*Lower right*)

**BULL PEN AND SHED. Plan 77901 (30¢).** Plan includes a shed 12 by 16 feet, a pen arrangement, and five types of fences.





## DAIRY HOUSING AND EQUIPMENT

Good dairy housing should provide ample space for the animals and for storage of feed and bedding; conditions favorable to the health, productivity, and safety of the animals; sanitation; facilities and arrangements that will save labor; and safe, healthful conditions for workers.

If milk is to be sold on a Grade A market, many specific requirements in the milk ordinances must be met. Details vary from one locality to another, so it is necessary to check plans with the local milk inspector for final approval.

### New Dairy Building Plans of the Midwest Plan Service

This extensive series includes working drawings for (1) loose housing barns and sheds, mostly pole-frame construction; (2) stall barns, with three choices of floor plans and various roof types for 1-story and 2-story barns; (3) both simple and elaborate farm milking plants, including milk-room, milking stalls, feed room, and other features; and (4) milkrooms covering requirements for daily capacities of 50 to 480 gallons. Some typical plans are listed below. For a complete

illustrated list, send 35¢ for the catalog "Dairy Building Plans."

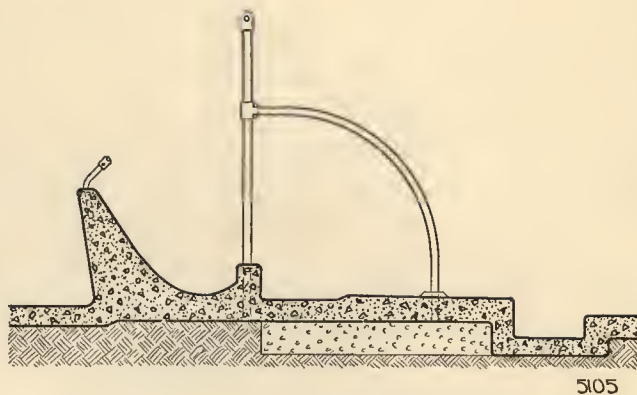
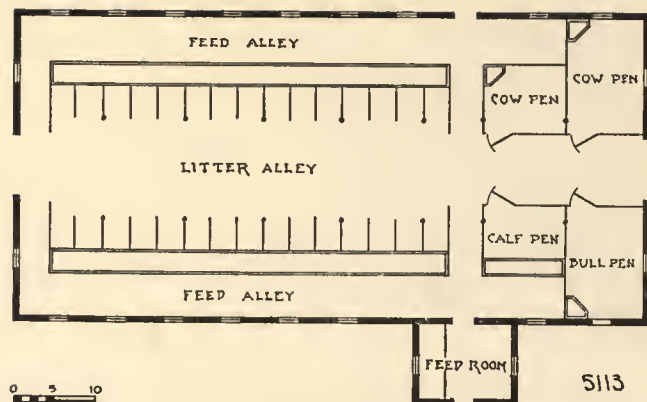
**LOOSE HOUSING BARNs.** Plan 72304 (45¢). Pole building 60 feet wide, 4-stall milking room and attached milkhouse; space for 45 cows. Plan 72303 (45¢). Similar pole building 45 feet wide for 22 cows. Any type of milking room can be used. (Two other plans are also available.)

**STANCHION BARNs.** Plan ~~73222~~ <sup>72322</sup> (\$1.05). Plans show 3 floor arrangements. Nine plans, each one for a different type of construction, are available under this plan number to give a choice of either 1 or 2 stories and flat, gable, gambrel, or gothic roof shapes. When ordering, state roof shape preferred and whether you want to build a 1-story or 2-story barn, so that the correct plan can be sent you.

**FARM MILKING PLANTS (milking room and milk house).** Plan 75238 (45¢). 4-stall U-type; includes feed room and utility room. Plan 75239 (45¢). Similar except the 4 stalls are in line. (These two are typical of the ten plans available.)

**MILKHOUSES.** Plan 75252 (90¢). Meets typical Grade A requirements; choice of daily capacity of either 50 gallons or 140 gallons. Plan 75251 (90¢). Similar but small and low cost. Minimum size can be extended to meet Grade A regulations. (Nine other plans are for greater capacities or special locations.)





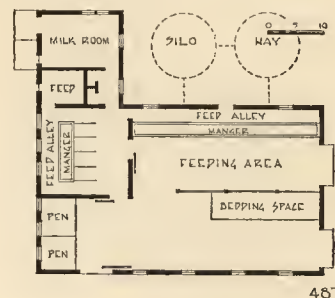
## STANCHION BARN

**FLOOR PLANS for barn 36 feet wide. Plan 5113 (15¢).** 4 face-out and 2 face-in arrangements. (*Top left*)

**FLOOR PLANS for barn 34 feet wide. Plan 5117 (15¢).** 2 face-out and 4 face-in arrangements.

**COMPLETE PLAN for barn 34 feet wide. Plan 72311 (\$1.05).** Gambrel roof. Alternate floor plans may be used, or the suggested floor plans can be used with 2-story arch roof or 1-story gable roof.

**\*SINGLE-ROW BARN. Plan 72323 (30¢).** 20 feet wide, concrete-block wall, 7-foot overhead loft. For small dairy.



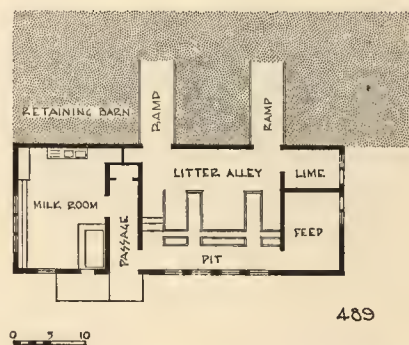
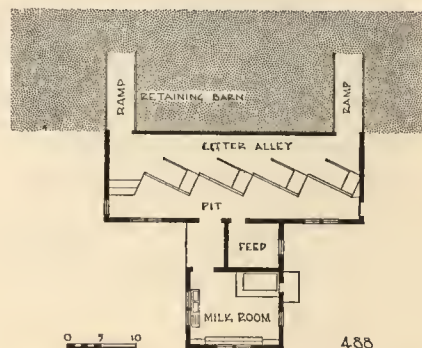
## LOOSE HOUSING STRUCTURES

**MILKING PARLOR AND PEN BARN. Plan 487 (45¢).** Post-supported gable roof, 1 story, 34 feet wide. When built 58 feet long, provides space for a 4-stall milking parlor and shelter area for 16 to 20 cows. Includes details for attached milkhous. (*Right*)

**ELEVATED MILKING PARLOR. Plan 488 (30¢).** A milking unit to be added to a pen barn. Has four elevated stalls. Operator works in a pit about 3 feet below stall level, so that milking operations are at a convenient working level. Includes details for attached milkhous. (*Right*).

**Plan 489 (30¢).** Same except that stalls face the pit squarely instead of being set at an angle with it. Includes details for attached milkhous. (*Right*)

**\*REMODELING LAYOUTS. Plan 72307 (45¢).** Suggested floor plans for use as guide in converting old barn to loose housing arrangement.



## MILKHOUSES AND EQUIPMENT

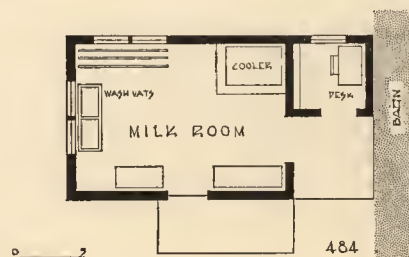
**MILKHOUSE. Plan 484 (15¢).** Recommended 12 x 16 feet for daily production of 20 to 50 gallons and 12 x 18 feet for 50 to 100 gallons. (*Lower right*)

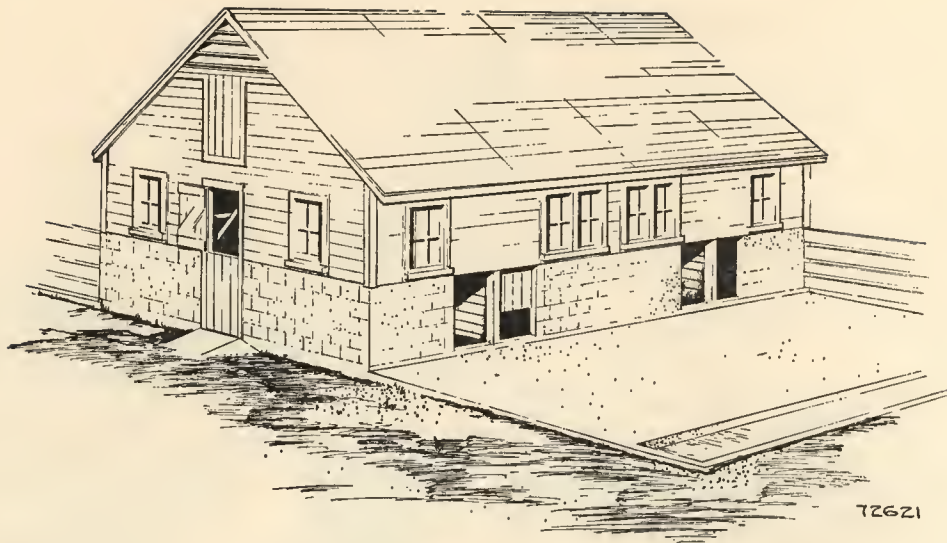
**COW-STALL DETAILS. Plan 5105 (15¢).** Details of two types: a high manger and a raised feed alley. (*Top right*)

**CONSTRUCTION DETAILS for concrete cow stalls. Plan 5106 (15¢).** 4 types shown.

**DETAILS FOR COW AND CALF STALLS. Plan 5107 (15¢).**

\* These are Midwest plans illustrated in the plan catalog "Dairy Building Plans" (35¢). Other plans in this new series are listed on opposite page.





## HOG HOUSING AND EQUIPMENT

The most critical time in a hog's life is from birth until it reaches a weight of about 75 pounds. During this period it needs a carefully planned house and protective equipment.

Some of the more important features of a good hog-housing system are:

Enough space for the animals

Protection from cold, wind, rain, and snow, and from too much summer sunshine

Guard rails and other equipment and constructions that will protect the animals

Temperatures and moisture conditions in the house that help to keep the animals healthy and comfortable

Easy to keep sanitary

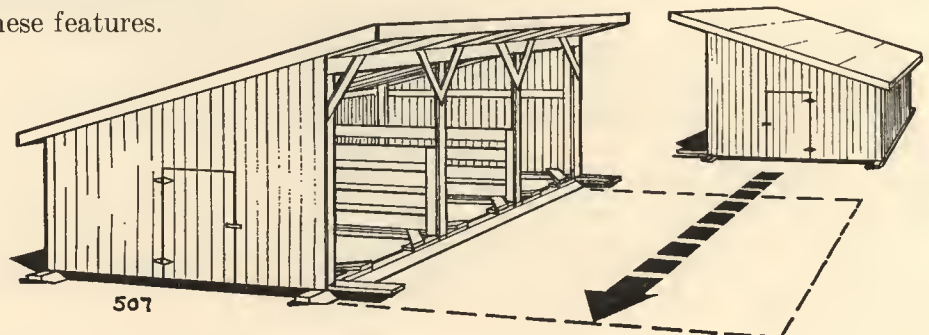
Opportunity to feed and handle the animals with a minimum of the operator's time

The current interest in winter and early spring farrowing and in houses for year-round (hatchery) production emphasizes the central hog house for the larger enterprises. Central houses help to save labor by centering the work in one building, but to meet present needs such houses have to be provided with supplementary heat, heat lamps, insulation, and facilities for sanitation. New designs are being studied and plans will be made available that will incorporate these features.

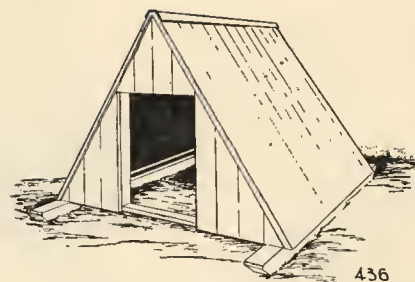
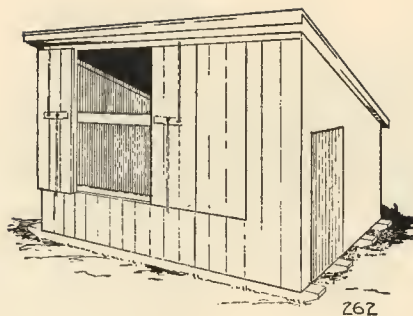
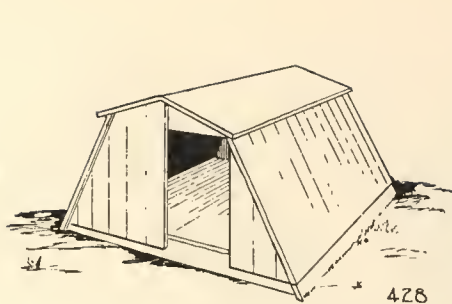
Three types of movable houses are in good demand: (1) individual houses, such as Plans 428 and 262 shown on page 13; (2) multi-unit houses with room for 2, 3, or 4 pens; and (3) divided 3-unit houses which can be brought together to form 6-pen houses with a service alley in the center (Plan 507, page 13, illustrated below).

Ready-made movable hog houses and self-feeders can be bought from materials dealers and manufacturers. It may be more practicable to buy these prefabricated items than to make them on the farm.

A number of Midwest plans for structures which serve as grain storages can be converted readily to farrowing houses or self-feeders (see page 7). They are Plan 72626 (15¢), two-unit house or 300-bushel bin; Plan 72627 (30¢); central farrowing house or 3,400-bushel bin; Plan 77613 (15¢) self-feeder and short-time storage; Plan 77614 (15¢), self-feeder or 400-bushel bin; and Plan 77615 (30¢), self-feeder, drier, or bin for 550 bushels of ear corn or 1,100 bushels of shelled corn.







## PLANS FOR HOG HOUSES

**CENTRAL HOUSE. Plan 72621 (30¢).** 22 feet wide, two rows of pens with alley between. When built 32 feet long, it provides space for 7 farrowing pens and a feed room. (*Opposite page*)

**TWO-SECTION, SIX-PEN HOUSE. Plan 507 (30¢).** Each section is 8 x 20 feet, arranged so the two parts can be used separately as summer shelters or brought together to form 6-pen unit with 3-foot center alley. (*Bottom, opposite page*)

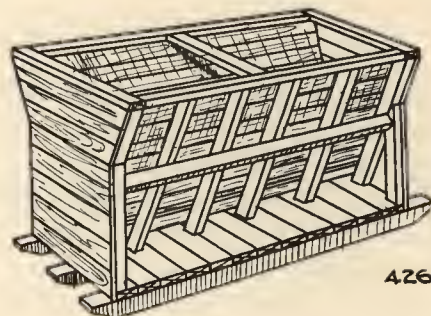
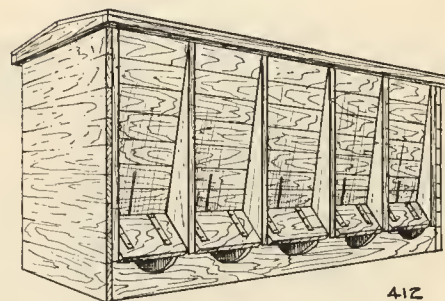
**MODIFIED A-TYPE HOUSE. Plan 428 (15¢).** Movable one-unit house, completely detailed and easy to build. (*Top left*)

**ILLINOIS SUNSHINE HOUSE, one unit. Plan 262 (15¢).** One of the most complete types of movable houses; 7 x 8 feet. (*Top center*)

**ILLINOIS SUNSHINE HOUSE, two units. Plan 371 (15¢).**

**A-TYPE HOUSE. Plan 436 (15¢).** Movable, one-unit. (*Top right*)

**SMALL GABLE-ROOF HOUSE. Plan 437 (15¢).** Movable, one-unit.



## HOG EQUIPMENT PLANS

**SELF-FEEDER. Plan 412 (15¢).** For small grain or shelled corn. Holds 25 to 30 bushels of feed and will accommodate 30 to 40 head of fattening hogs. (*Right*)

**SMALL SELF-FEEDER. Plan 118 (15¢).** For small herds or for young pigs. Holds 6 to 8 bushels.

**EAR-CORN FEEDER, covered hopper. Plan 125 (15¢).** When built 12 feet long, it holds about 75 bushels.

**EAR-CORN FEEDER, open hopper. Plan 426 (15¢).** When built 10 feet long, it holds 75 to 80 bushels. (*Right*)

**HOG TROUGH. Plan 411 (15¢).** Heavy wood construction. Has uprights to keep hogs out of trough.

**AUTOMATIC HOG WATERER. Plan 408 (15¢).** Float arrangement to give automatic control. Has uprights to keep hogs out of trough.

**PIG BROODER. Plan 385 (15¢).** Fits in one corner of the farrowing house or pen. Heated with 100- or 150-watt lamp. (*Right*)

**GUARD RAILS. Plan 164 (15¢).** Six types, using different methods and materials of construction. (*Lower right*)

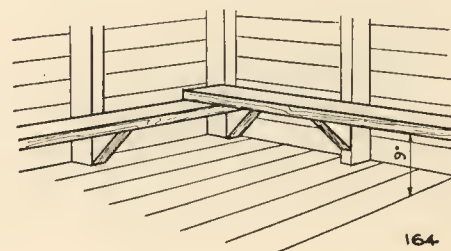
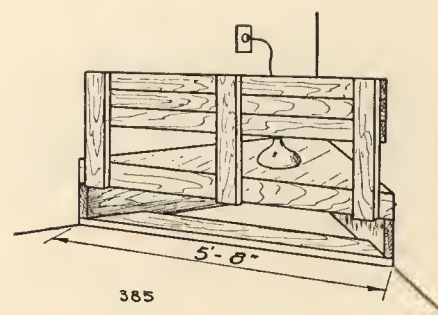
**CREEPS AND HURDLES. Plan 167 (15¢).** Easy to build.

**VACCINATING AND CASTRATING RACK. Plan 430 (15¢).** Simple construction. Can be used for treating young animals.

**BREEDING AND RINGING CRATE. Plan 77621 (15¢).**

**LOADING CHUTE. Plan 423 (15¢).** Permanently located. Height adjustable.

**PASTURE SHADE. Plan 429 (15¢).** Movable; 10 x 12 feet.







## POULTRY HOUSING AND EQUIPMENT

A farm poultry enterprise usually needs houses for growing stock (fryers, broilers, or replacements); laying houses; and equipment such as nests, roosts, feeders, and waterers. The houses must be carefully designed, especially in the colder regions, to protect the birds from rain and snow, cold wind, dampness, extreme changes in temperature, low temperature, and high summer temperatures.

**Houses for growing stock.** For farm flocks the common type of house for young chicks or growing stock is a single-unit brooder house from 10 x 12 feet to 12 x 14 feet for 200 to 300 baby chicks. Single-unit houses can be bought prefabricated so that they come to the farm ready to use.

**Laying houses.** Laying houses for farm-size flocks may be either uninsulated, partly insulated with a straw loft and ventilated attic, or tightly built, fully insulated houses with controlled ventilation.

The straw-loft house is commonly recommended for Illinois. The straw fill lets moisture out and permits air to circulate. With ventilated space above the straw and with adjustable windows, ventilation is reasonably good and a special ventilating system is not needed. In the coldest

parts of Illinois, fully insulated houses with ventilating systems will maintain better conditions inside, but they are more expensive. Uninsulated houses are built with only one layer of wood or other material for siding and have a low roof without a loft. They are generally used in the southern part of Illinois.

Laying houses are planned on the basis of about 3 to 4 square feet of floor area per bird, depending on the breed. Less space results in overcrowding. A house 20 feet square will take care of 100 to 135 hens and is sometimes called a unit house.

**Equipment.** When considering the equipment for a laying house, it is well to plan for:

- 8 to 10 inches of roosting space per bird
- one open nest for each 5 or 6 hens or one trap nest for each 3 or 4 hens
- about 1 foot of mash-hopper feeding space for every 5 hens
- an ample water supply — preferably running water with automatic controls and protection against freezing
- rodent-proof feed storage — metal cans or barrels, or in a large house a separate feed room
- two 40- to 60-watt lights with reflectors over the feed hoppers for each 20-foot length of pen





## PLANS FOR POULTRY HOUSES

**STRAW-LOFT HOUSE.** Plan 404 (30¢). Gable roof; 20 x 40 feet for 200 hens, two units. Vary length to get desired capacity. Described in Circular 525, which will be sent free on request. (*Opposite page*).  
**Plan 501** (45¢). Similar except for metal roofing and siding; trussed rafters, 4-foot spacing.

**SHED ROOF.** Plan 418 (30¢). 20 x 20 feet for 100 hens. Extend length for larger flocks. (*Upper left*)

**"MISSOURI" TYPE.** Gable roof. Square shape.

Plan 72731 (30¢). 30 x 30 feet for 225 hens.

Plan 72732 (30¢). 40 x 40 feet for 400 hens.

Plan 72733 (15¢). 20 x 20 feet for 100 hens. (*Upper center*)

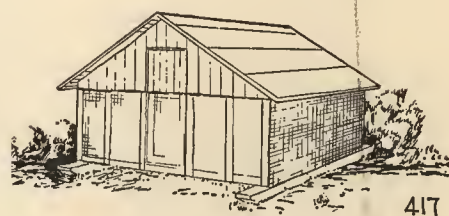
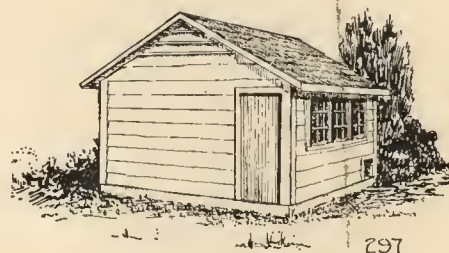
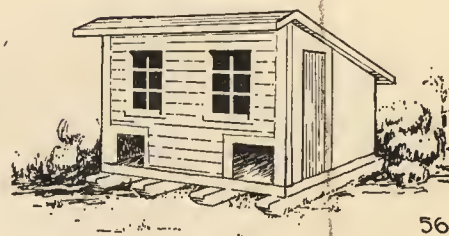
Plan 72734 (15¢). 24 x 24 feet for 150 hens.

**TWO-STORY HOUSE.** Plan 72751 (75¢). When made 26 x 100 feet, provides nine units, each 20 x 26 feet. (*Top right*)

**BROODER HOUSE.** Plan 56 (15¢). Shed roof; movable. When built 10 x 12 feet, will accommodate 250 baby chicks. (*Right*)

**SMALL HOUSE.** Plan 297 (15¢). Gable roof; 12 x 12 feet. Suitable for about 36 hens, or may be used as a brooder house for 300 chicks. (*Right*)

**MULTIPLE-PURPOSE POULTRY SHELTER.** Plan 417 (15¢). 10 x 12 feet, lightweight, movable, frame-and-screen construction. Described in Circular 552, which will be sent free on request. (*Right*)



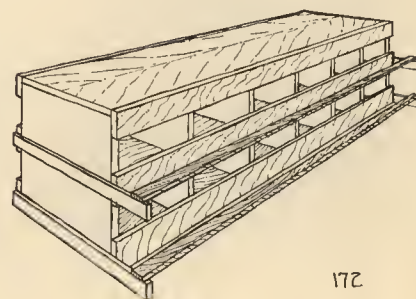
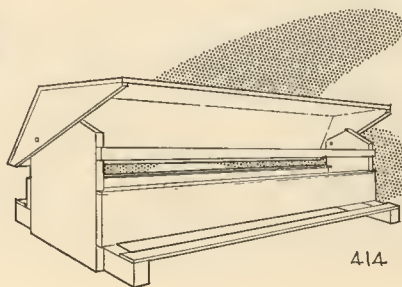
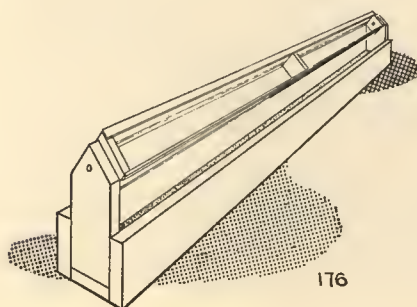
## POULTRY EQUIPMENT PLANS

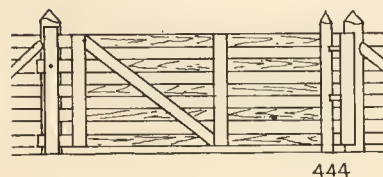
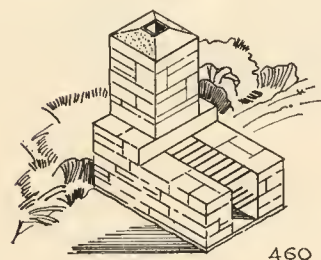
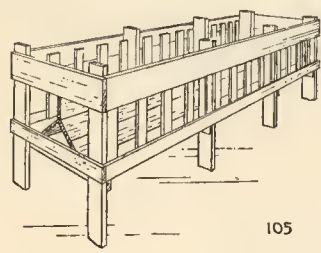
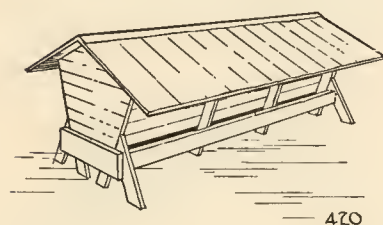
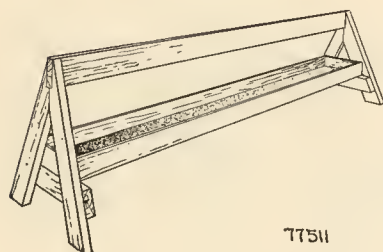
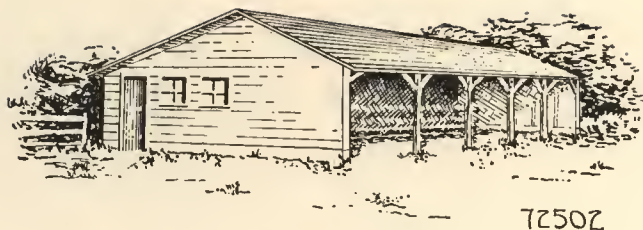
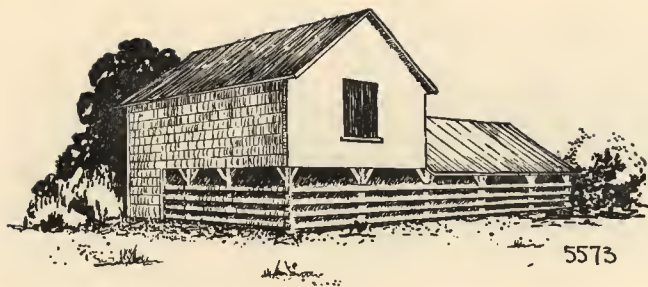
**CHICK MASH FEEDERS.** Plan 176 (15¢). Construction details for starting, secondary, and finishing feeders. (*Lower left*)

**POULTRY MASH FEEDERS.** Plan 414 (15¢). Inside stand and outdoor hopper types. (*Lower center*)

**SELF-FEEDER.** Plan 77713 (15¢). Covered hopper.

**WOODEN NESTS.** Plan 172 (15¢). (*Lower right*)





## SHEEP BARN AND EQUIPMENT

**SHEEP BARN.** Plan 5573 (30¢). Has a two-story, gable-roof section, 20 x 32 feet, with space for grain and hay storage, and either one or two 1-story gable-roof wings 24 feet wide. (Top left)

**SHEEP SHED.** Plan 72502 (30¢). Gable roof, open front; 22 feet wide, length variable in 7-foot units. (Top right)

**SHEEP SHED.** Plan 261 (15¢). Half monitor roof, open front; 21 feet wide, length variable in 12-foot units.

**FEED TROUGH for grain.** Plan 77511 (15¢). 12-inch trough, 8 feet long. (Left)

**GRAIN SELF-FEEDER.** Plan 420 (15¢). Covered hopper. Length variable in 4-foot units. (Left)

**RACK AND TROUGH.** Plan 105 (15¢). For feeding hay and grain. 3 feet wide, length variable in 4-foot units, straight sides (left). Plan 104 (15¢). Same except for sloping sides.

**DIPPING VATS.** Plan 77651 (15¢). Large permanent concrete pit; wood pens. Plan 386 (15¢). Auto-trailer type, steel frame and vat; wood platform and ramp.

## GENERAL PURPOSE BARN

**ONE-STORY.** Plan 72114 (60¢). 34 feet wide, without loft or ceiling. Space adaptable for many uses.

**TWO-STORY.** Plan 72115 (60¢). 34 feet wide, with hay loft. Gambrel roof. Shows dairy stalls, pens, and feed rooms.

## MISCELLANEOUS

**OUTDOOR TOILET.** Plan 378 (15¢). Wood construction.

**OUTDOOR FIREPLACE.** Plan 460 (15¢). Three types: masonry fireplace with chimney, medium-sized masonry fireplace, low-cost loose-stone fireplace. (Lower center)

**WOODEN GATES AND FENCES.** Plan 444 (15¢). Seven types of gates, fences, and passages. (Lower right)

**BARN DOORS.** Plan 5171 (15¢). Details for single- and double-sliding, "Dutch," and hay doors.



## PLANNING THE FARMSTEAD

Planning of farm buildings should begin with a study of the farmstead so that each new building can be located to best advantage and the arrangement of buildings, driveway, yards, and plantings can be effective and attractive. A long-time plan is needed as a guide. Each improvement as it is added can then be located to fit into the long-time plan.

The general principles of farm planning are the same for most farmsteads even though the details vary because of differences between farms. The following suggestions apply to most farmsteads in Illinois.

**Locate each new building on elevated ground** so that surface water will drain away from it. If necessary, build the floor above the ground line and grade the ground to get the right slope.

**Try to group buildings according to the production program;** place animal shelters, hay storage, grain and feed supplies, and feeding floors or milk rooms in compact, labor-saving units. Keep machinery-storage and shop buildings away from barns to minimize danger from fire, but place them so it will be easy to get machinery in and out.

**Locate a new dwelling 80 to 100 feet from the road** with the garage near the house. Poultry

buildings may be reasonably close to the house — 100 feet or even less.

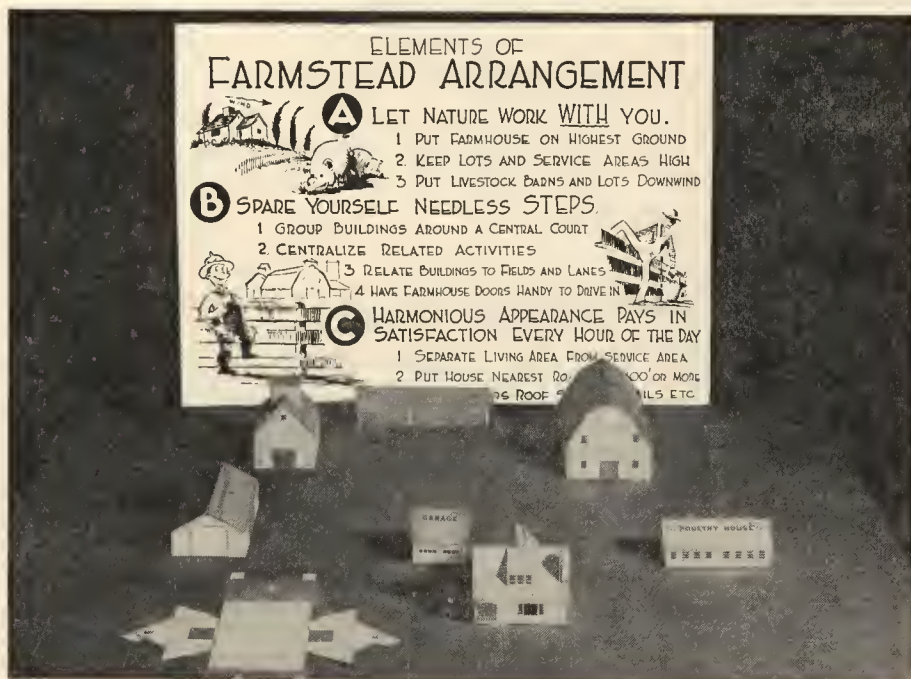
**Plan a service court or farmyard** so that you will not have to go through gates to reach the principal buildings. Make the court large enough for trucks, tractors, and farm machinery to be handled and turned easily. This means the yard should be at least 80 feet across the narrow width.

**Protect feedlots, pens, and yards** by locating them to the south or south and east of the barns and other shelters. This arrangement will cut off cold winds in winter, get as much sunlight as possible in the lots, and reduce the danger of icy yards.

**Locate windbreaks north and west** of the buildings. Keep the area reasonably open to the south and southwest. Avoid locating hog lots and cattle yards southwest of the dwelling.

**Usually provide only one all-weather driveway** from the road into the farmstead. Provide space for parking cars. Make it easy to get to the front and back doors of the house, to the garage, and to the farm buildings from the driveway.

**Plan for water supply and electric service** to all principal buildings and for septic-tank sewage disposal from the dwelling.



**FARMSTEAD PLANNING AID.** Plan 459 (60¢). A set of seven farm-building models. These models can be used to study farmstead arrangement and location of buildings. They are printed in two colors, cut, and creased for folding. Plan 467 (15¢) is a scaled layout sheet or grid for farmstead planning.

## PUBLICATIONS ON FARM STRUCTURES AND HOUSING

### From the U. S. Department of Agriculture

A number of publications dealing with farmhouses and other farm structures can be obtained from the U. S. Department of Agriculture. Some that are likely to be of interest to Illinois farm families are listed below.

When ordering any of these, give series, number, and title of publication. The series is indicated by the letter coming before the number; in the following list F means Farmers' Bulletin, C means Circular, G means Home and Garden Bulletin, L means Leaflet, and M means Miscellaneous Publication. Single copies of the following publications are sent free as long as the supply for free distribution lasts. As many as 10 different publications may be ordered by any one person. If the free supply is exhausted and they are not available from some other source, they can usually be obtained at cost from the Government Printing Office, Washington 25, D. C.

Send orders for free publications to **Division of Publications, Office of Information, U. S. Department of Agriculture, Washington 25, D. C.**

#### Farm housing

- F 1426 Farm Plumbing
- F 1460 Simple Plumbing Repairs in the Home
- F 1572 Making Cellars Dry
- F 1865 Closets and Storage Spaces
- F 1889 Fireplaces and Chimneys
- F 1950 Sewage and Garbage Disposal on the Farm
- F 1978 Safe Water for the Farm
- F 1993 Decay and Termite Damage in Houses
- C 406 Oil Burners for Home Heating
- G 12 Your Farmhouse — Planning the Kitchen and Workroom
- G 14 A Step Saving U Kitchen
- M 358 Use and Abuse of Wood in House Construction
- M 619 Your Farmhouse . . . How to Plan Remodeling
- M 633 Your Farmhouse . . . Insulation and Weatherproofing

- F 1584 Feedlot and Ranch Equipment for Beef Cattle
- F 1643 Fire Safeguards for the Farm
- F 1678 Safe Use and Storage of Gasoline and Kerosene on the Farm
- F 1751 Roof Coverings for Farm Buildings
- F 1756 Selection of Lumber
- F 1772 Use of Concrete on the Farm
- F 1818 Mechanical Milk Cooling on Farms
- F 1820 Silos: Types and Construction
- F 1832 Farm Fences
- F 1838 Electric Light for the Farmstead
- F 1869 Foundations for Farm Buildings
- F 1911 Preventing Damage to Buildings by Subterranean Termites and Their Control
- F 1976 Handling and Storing Soft Corn on the Farm
- F 2009 Storage of Small Grains and Shelled Corn
- F 2010 Storage of Ear Corn on the Farm
- C 683 Effectiveness of Wood Preservatives in Preventing Attack by Termites
- C 722 Functional Requirements in Designing Dairy Barns
- C 839 Mechanical Drying of Corn on the Farm
- L 314 Inclined-Column Grain Drier
- L 320 Two-Temperature Walk-in Refrigerator for the Farm

#### Farm buildings, materials, and equipment

- F 810 Equipment for Farm Sheep Raising
- F 1487 Practical Hog Houses
- F 1490 Hog-Lot Equipment
- F 1554 Poultry Houses and Fixtures

### From the Small Homes Council

Nontechnical circulars on various phases of home planning and construction are published by the Small Homes Council. Orders for these should be sent to the **Small Homes Council, Mumford House, University of Illinois, Urbana, Illinois**. These are available for 10 cents each, or \$2.50 for the set of 25 circulars listed below. (Price subject to change as new circulars are added to the set.) With the purchase of the set, your name will be added to a mailing list to receive future circulars free of charge. The circulars are issued whenever results of research are available. There is no stated time for publication.

- A1.3 Financing the Home
- A2.0 Business Dealings With Architect and Contractor
- B1.1 Livable Neighborhood
- B2.1 Selecting the Home Site

- B3.0 Land Design
- C2.1 Designing the Home
- C3.2 Solar Orientation
- C5.3 Planning the Kitchen
- C5.31 Cabinet Space for the Kitchen



C5.32 Kitchen Planning Standards  
 C7.2 A Basic Farmhouse Plan  
 E2.1 Construction Methods  
 F4.3 Concrete Floors for Basementless Houses  
 F6.0 Insulation  
 F6.2 Moisture Condensation  
 F7.0 Chimneys and Fireplaces  
 F11.2 Storm Sash

F15.0 Hardware  
 G3.1 Heating the Home  
 G3.5 Fuels and Burners  
 G3.61 Homes Planned for Coal or Coke  
 G4.0 Electricity  
 G5.0 Plumbing  
 G5.5 Septic-Tank Systems  
 H1.0 Interior Design

## From the University of Illinois Department of Agricultural Engineering

In addition to the farm-building plans listed in this circular, the College of Agriculture publishes other material which contains information that will answer many questions about farm buildings. The following list includes the free publications now available. To obtain any of them, or to get answers to other questions about farm buildings, see your farm or home adviser, or write to the Department of Agricultural Engineering, University of Illinois, College of Agriculture, Urbana, Illinois.

### Farm Housing

When You Build or Remodel Your Farmhouse. Circular 620 (Regional Publication No. 8).

A Basic Farmhouse Plan. Circular C7.2.

Septic-Tank Systems. Circular G5.5.

Farmhouse planning leaflets. Several on such farmhouse subjects as choosing a roof, storage space, landscaping, remodeling the T-shaped house, and how to fit your farmhouse to your farmstead.

### Barns

Beef Cattle Housing. Regional Publication No. 6.

Dairy Cattle Housing. Regional Publication No. 7.

Loose Housing for the Farm Dairy. Circular 694.

Beef Cattle Feeding Study. AEng. 550.

### Crop Storage

Storing Soybeans on the Farm. Circular 692.

Harvesting and Storing Chopped Hay. AEng. 230.

Silo Capacity Table. AEng. 372.

Temporary or Emergency Silos. AEng. 400.

Barn Hay Curing Systems. AEng. 462.

Drying Corn in Cribs. AEng. 545.

Handling, Storing, and Feeding Soft Corn. AEng. 546.

Plan for Pole and Snowfence Crib. Sheet 447.

Plan for Circular Corn Crib of Native Lumber. Sheet 495.

### Hog Housing

Labor-Saving Hog Equipment. Circular 554.

Self-Feeders for Hogs. Circular 562.

### Poultry Housing

Straw-Loft Poultry House. Circular 525.

All-Purpose Poultry Shelter. Circular 552.

### Other

Galvanized Roofing for Farm Buildings. Circular 624.

Preserve Your Posts With Penta. Circular 636.

Winter Vegetable Storage. Circular 530. (Has a description of a basement storeroom.)

## Midwest Plan Service

From time to time this cooperative planning agency of the colleges of agriculture, in the north-central states publishes plan books or catalogs, each of which illustrates and describes the plans it has available on a given subject. Many of these plans are listed in this circular, but more detailed descriptions and illustrations are found in the catalogs. Catalogs include those for grain-storage buildings, dairy buildings, and a miscellaneous group of beef cattle sheds and barns, general-purpose barns, and barn-roof framing. Catalogs are being prepared on hog housing and equipment and on farmhouses. The following can be ordered from the Department of Agricultural Engineering, University of Illinois, College of Agriculture, Urbana, Illinois:

|   |        |
|---|--------|
| Catalogs: Grain Storage Building Plans..... | \$ .25 |
| Dairy Building Plans.....                   | .35    |
| Beef Cattle and Other Barns and Sheds ..... | .25    |

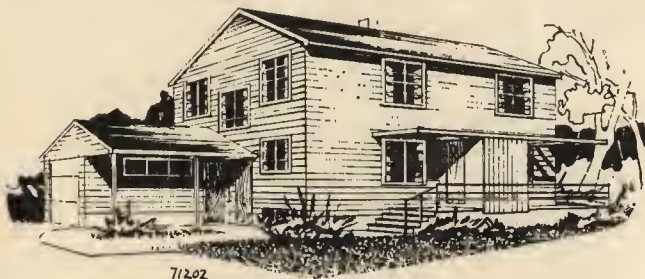
Bound sets of complete working drawings:

|  |         |
|--|---------|
| Crop Storage Buildings (60 sheets).... | \$ 7.50 |
| Dairy Buildings (87 sheets).....       | 12.50   |
| Beef Cattle Buildings (50 sheets)..... | 7.00    |

## FARMHOUSES

The University of Illinois College of Agriculture, working together with other agencies, conducts an extensive program of work in housing research, farmhouse planning, remodeling, and home improvement. Because farm housing is too large a subject to be covered in this brief space, only some of the recent developments can be mentioned here.

Circular 620 (Regional Publication 8), "When You Build or Remodel Your Farmhouse," will help you in planning before you start to build. Circular C7.2, "A Basic Farmhouse Plan," illustrates and describes an unusually popular, highly adaptable farmhouse. Both publications are free on request. Complete plans for the basic farmhouse, Plan 480, are \$1.00.



Ideas for remodeling may be obtained from ten blueprint sheets which show how Illinois farm families have remodeled their houses. Ask for "ten remodeling plans" (\$1.50). See pages 18 and 19 for other farm-housing publications.

A significant advance in farmhouse planning is a 1952 series of plans prepared at the University of Illinois as part of a North-Central regional program. These plans (listed at right) are called "Flexi-plans" because they can be varied in so many ways. Only three of the many variations are shown here. By selecting from among the

combinations of bedrooms and daytime rooms included in each plan, you can choose the arrangement, number of rooms, and size of house that most nearly meets your need. The plans are in the Midwest series, which means they can be obtained from other colleges of agriculture, mostly in the North-Central states, as well as from Illinois.

Each set of plans is complete in itself. Additional plans, catalogs, or printed descriptions are in preparation.



### **THREE-LEVEL FARMHOUSE. Plan 71201 (\$1.80).**

Eight plan variations. Daytime rooms at ground level; sleeping rooms one-half story up; heating plant, workroom, storage, and other facilities in lower level under sleeping rooms. Reduces stair climbing and does away with deep basement. Especially designed for a level site, but fits some slope conditions.

**MULTI-STORY FARMHOUSES (permits choice of 1-, 1½-, or 2-story plan). Plan 71202 (\$1.65).** Three basic plans for 1-story houses. Each plan can be expanded to 1½ or 2 stories.

**EXPANSIBLE FARMHOUSES. Plan 71203 (\$2.10).** 12 complete plan variations illustrated. Each plan is divided so that any bedroom arrangement can be fitted to any living-work-area plan to obtain the desired combination. May be built with or without basement, with or without second-story rooms, and with various bathroom plans. Permits several hundred choices of plans.

